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CLOSURE PLAN
FOR
ELECTRIC ARC FURNACE BAGHOUSE
HAZARDOUS WASTE MANAGEMENT UNIT

Prepared for:
AMERICAN STEEL FOUNDRIES
ALLIANCE, OHIO

Prepared by:
RMT, INC.
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Section 1
INTRODUCTION

1.1 Background

Amsted Industries, Inc., d.b.a. American Steel Foundries (ASF) owns and operates an electric arc furnace (EAF) used to produce steel castings at the Broadway Street facility in Alliance, Ohio. In order to produce the steel castings, scrap metal is melted in the EAF to supply the molten metal necessary to produce the castings. During these melt operations, particulate emissions are generated and captured in a Pangborn baghouse which is connected to the existing furnace through enclosed ductwork. ASF's EAF dust samples, tested by TCLP protocol, show that lead and cadmium leach at levels higher than the regulatory limits (5.0 mg/L and 1.0 mg/L, respectively). Over the course of 20 years of operation, some spillage of dust may have occurred to the soils beneath the baghouse during routine practices of discharging the baghouse dust into appropriate shipment containers. IN ADDITION, ASF GENERATES SMALL QUANTITIES OF WIRE WELDER DUST WHICH IS CHARACTERISTICALLY HAZARDOUS FOR BARIUM. THE WELD DUST IS ADDED TO THE EAF DUST FOR DISPOSAL.

Preliminary testing of the soils beneath the baghouse for compositional metals showed potentially elevated levels of cadmium, lead and chromium. Due to the Consent Decree entered on December 1, 1992 involving ASF's landfill, the OEPA has ordered ASF to close the area beneath the baghouse which is classified as a Resource Conservation and Recovery Act (RCRA) unit. As a result of this decree, ASF is seeking closure of the area in accordance with applicable portions of the RCRA 40 CFR, Part 265, Subpart G, and Ohio Administrative Code (OAC) 3745-66.

1.2 Purpose and Scope

The purpose of this Closure Plan is to describe the closure activities that ASF will perform to close the area beneath the EAF baghouse.

The scope of this closure plan includes the following:

- Description of the area beneath the EAF baghouse.
- The regulatory framework for closure of the area beneath the EAF baghouse.
- The technical approach which will be used to accomplish clean closure of the area beneath the EAF baghouse, including soil removal, and disposal.

- Methods which will be implemented to prevent the generation of hazardous baghouse dust in the future.
- Analytical parameters and performance standards for determining clean closure, including the method that will be used to establish background levels for hazardous constituents.
- Methods for performing and documenting clean closure.
- Sampling plan for the soils beneath, and adjacent to the EAF baghouse.
- Health and Safety issues related to closure activities.
- Estimated soil quantities.
- Estimated closure schedule.
- Decontamination methods for the equipment used to handle contaminated material during closure.
- Documentation of closure activities.
- Facility status after closure.

This closure plan is intended to fulfill the requirements applicable to the contaminated soils associated with the EAF baghouse dust, and to describe key activities, tests, and performance standards for closure of this waste management unit. These requirements are regulated under the applicable portions of 40 CFR Part 265, Subpart G, and the OAC 3745-66. Items related to closure cost estimates and financial assurance are not included in this Closure Plan, because they are not addressed under 40 CFR Part 265, Subpart G. Closure cost estimates and financial assurance information will be submitted to the OEPA under separate cover.

The closure activities which are described in Section 4 are directed toward attaining "clean closure." If clean closure is not feasible, ASF will amend the Closure Plan to develop a Modified Closure Plan.

Section 2

GENERAL FACILITY INFORMATION

2.1 Facility Name, Location, Contact and Standard Industrial Code

Name:	Amsted Industries, Inc. d.b.a American Steel Foundries Alliance Facility
Location:	1001 East Broadway Alliance, Stark County, Ohio
Contact:	Mr. Terry Bradway Facilities Engineer American Steel Foundries 1001 East Broadway Alliance, Ohio 44601 216\823-6150 ext. 206
Standard Industrial Code:	3325
USEPA ID #:	OHD 981 090 418

2.2 Site Description

The Alliance Facility is located in the southeast quarter of Section 25, Township 29 north, Range 6 west in the City of Alliance, Ohio, in Stark County (see Figure 2-1). The EAF baghouse area is comprised of approximately 1320 square feet and is located in the northwest corner of the facility, approximately 5 feet southwest of the scrap metal storage building and 15 feet northeast of the truck scale as shown in Figure 2-2. The Pangborn baghouse receives particulate emissions, which are generated from melting scrap metal, using an EAF to supply the molten metal necessary to produce steel castings. Over the past 20 years, the possibility exists that spillage to the soils beneath the baghouse may have occurred during routine practices of discharging the baghouse dust from the collection hopper, in the bottom of the baghouse unit, to appropriate shipment containers.

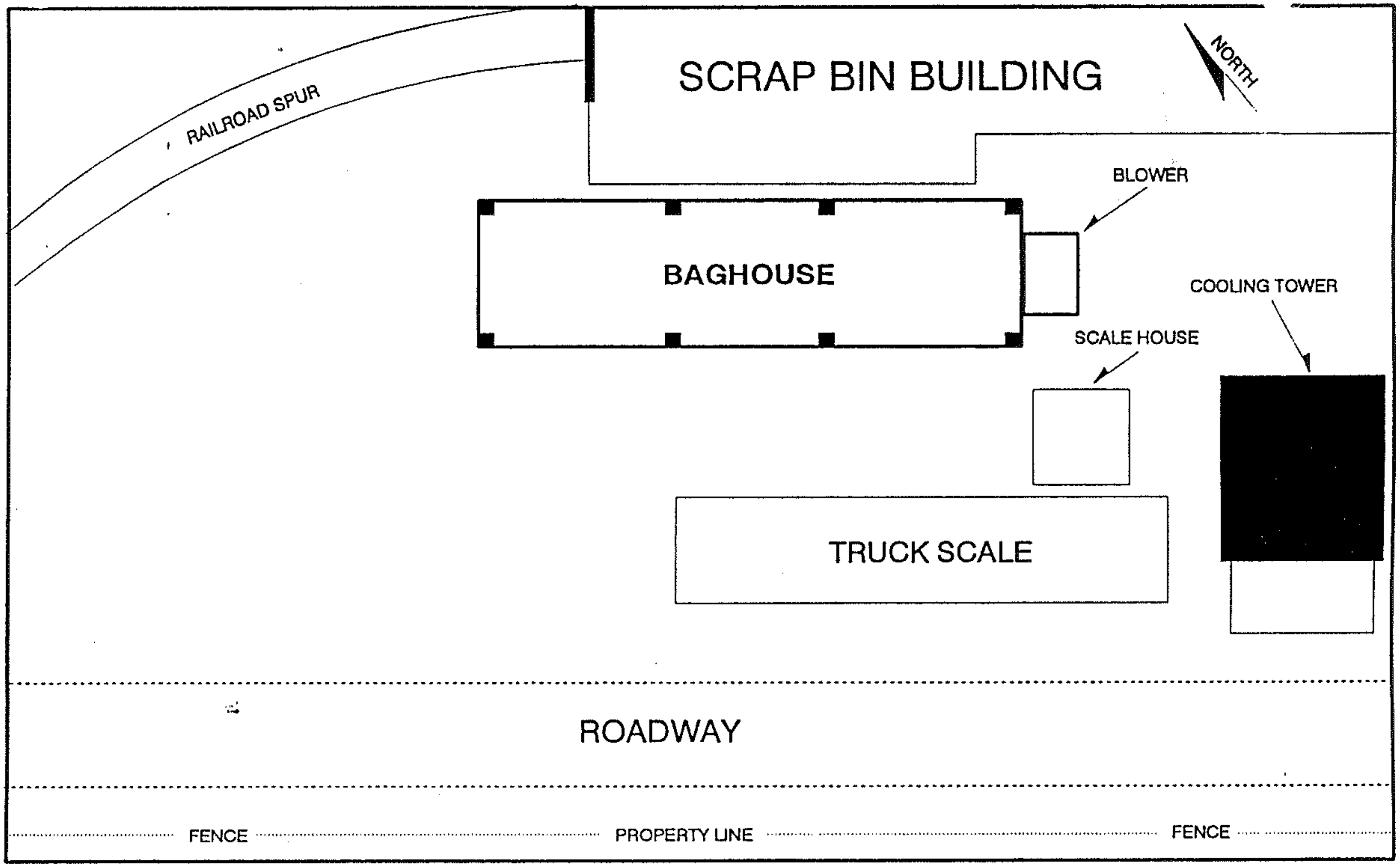
THE OHIO EPA MAINTAINS THAT THERE ARE TWO (2) ADDITIONAL RCRA UNITS AT THE ALLIANCE FACILITY WHICH REMAIN UNCLOSED. THESE UNITS ARE CURRENTLY UNDER NEGOTIATION AND WILL BE ADDRESSED IN A SEPARATE CLOSURE PLAN.

NOTE: BASE MAP FROM USGS 7.5 MIN. QUAD.
ALLIANCE, OHIO, 1966

SCALE 1:24 000

NORTH

Figure 2-1 Site Location



American Steel Foundries

SCALE
0 10 20 40 FEET

Figure 2-2 Site Features

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2.3 Waste Characterization

The basis for classification of the EAF dust waste management unit as a characteristic hazardous waste ~~has been discussed in Section 1 of this Closure Plan.~~ IS SUMMARIZED IN THE FOLLOWING TABLE:

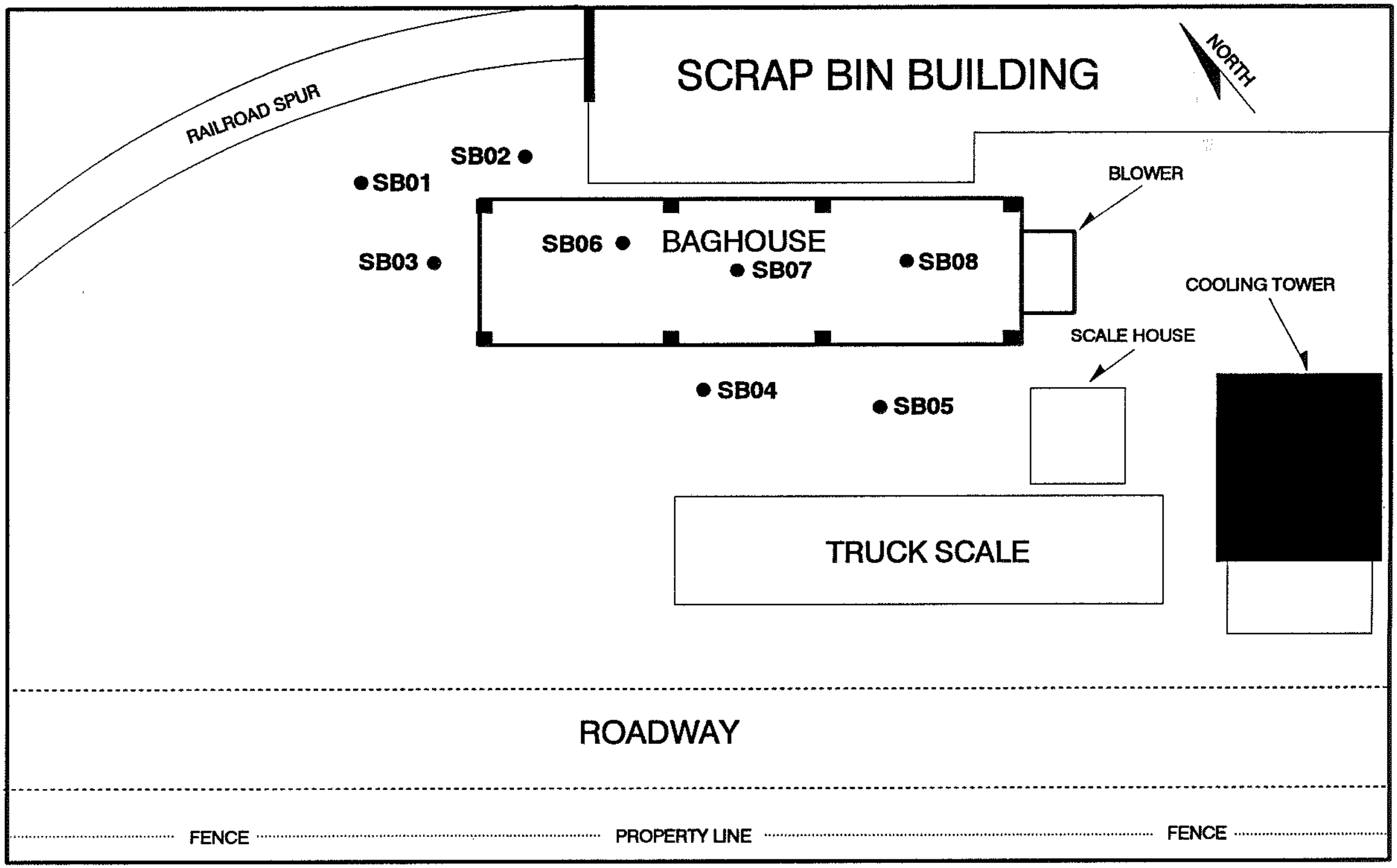
WASTE TYPE	HAZARDOUS CONSTITUENT	EPA HAZARDOUS WASTE NUMBER	MAXIMUM INVENTORY DUST	MAXIMUM INVENTORY HAZARDOUS CONSTITUENTS
ELECTRIC ARC FURNACE DUST	LEAD CADMIUM	D008 D006	50,000 LBS.	500 LBS. 250 LBS.
WIRE WELDER DUST	BARIUM	D005	300 LBS.	UNKNOWN

The EAF dust waste management unit has been characterized by a Pre-Closure Sampling and Analysis Program for soils in the area of the baghouse and by previous baghouse area soil testing for total metals done by ASF. Information obtained from these studies were used to develop the closure approach presented in this document. Details of the Pre-Closure Sampling and Analysis Program are contained in Sub-section 2.3.1.

2.3.1 Pre-Closure Sampling and Analysis Program

To obtain information regarding the extent of potentially elevated lead, cadmium, ~~and~~ chromium, AND BARIUM concentrations in soils associated with the EAF dust waste management unit, ASF collected and analyzed 13 samples of underlying soils from the area of the EAF baghouse. Sampling activities were conducted on January 7, 1992.

The general extent of hazardous materials in underlying soils above the upper confidence limits (UCLs) of the area below the baghouse was determined based upon results of in-field work performed by ASF. During that time, 8 soil borings were installed in the area of the baghouse at the approximate locations shown in Figure 2-3. In addition to the 8 soil borings, 3 background samples were collected in areas not associated with baghouse activities as discussed in Section 3.3. From the 11 sample locations, 8 samples were collected at depths of 0-to-1 feet, 5 samples were collected at depths of



American Steel Foundries

LEGEND: ● Soil Sample

SCALE
0 10 20 40 FEET

Figure 2-3 Baghouse Area Soil Sampling Locations

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1-to-2 feet and 3 background samples were collected at depths of 0-to-0.5 feet below the surface. A physical description of the samples indicated that the material in the area of the baghouse consist of primarily limestone, which ASF has used to build up road beds.

Of the 16 samples collected, 13 were analyzed for cadmium, chromium and lead using compositional analyses, 2 were analyzed for cadmium and lead using TCLP analyses, and 1 was analyzed for chromium using TCLP analysis. The analytical results are summarized in Table 2-1. The data contained in Table 2-1 indicated the following:

- Elevated concentrations of compositional cadmium, chromium and lead were observed in the underlying soils.
- TCLP results did not indicate the presence of underlying soil that is hazardous due to the characteristics of cadmium, chromium and lead. Because previous full TCLP analyses (1991) and bench-scale testing indicated the EAF baghouse dust is hazardous due to the characteristics of only cadmium and lead, no other constituents were investigated.

From the boring logs and the analytical results, the vertical and horizontal extent of the wastes and underlying soils with concentrations above the UCLs were estimated. Based on the results of the Pre-Closure Sampling and Analysis Program, clean closure was determined to be feasible. The Pre-Closure Sampling and Analysis Plan is contained in Appendix G, soil boring logs are contained in Appendix E, and the laboratory report sheets are contained in Appendix A.

2.3.2 VERIFICATION SAMPLING AND ANALYSIS

UPON COMPLETION OF EXCAVATION, BUT PRIOR TO BACKFILLING, ADDITIONAL HORIZONTAL AND VERTICAL CONFIRMATORY SAMPLING WILL BE PERFORMED ACCORDING TO THE CONFIRMATORY SAMPLING PLAN IN SECTION 7. SAMPLES WILL BE ANALYZED FOR TOTAL LEAD, CADMIUM, CHROMIUM, AND BARIUM. RESULTS WILL BE COMPARED TO THE UCLS OF THE BACKGROUND SAMPLES, AS PERFORMED UNDER SECTION 3.3.

IF CONFIRMATORY SAMPLING SHOWS THAT CLEAN CLOSURE HAS BEEN ACHIEVED, THE EXCAVATION WILL BE BACKFILLED AND COMPACTED WITH CLEAN GRANULAR FILL. IF CLEAN CLOSURE CANNOT BE ACHIEVED DUE TO THE PHYSICAL CONSTRAINTS OF FURTHER EXCAVATION OR OTHER UNEXPECTED EVENTS, THE AGENCY WILL BE NOTIFIED IN WRITING WITHIN 14 DAYS AND AN AMENDED CLOSURE PLAN WILL BE SUBMITTED WITHIN 30 DAYS.

TABLE 2-1
PRE-CLOSURE BAGHOUSE AREA SOILS SAMPLING AND ANALYSIS RESULTS

Analytical Parameter	Detection Limit	Sample Location and Depth																			Hazardous Waste Limit
		SB01		SB02		SB03		SB04		SB05		SB06		SB07		SB08		SB09	SB10	SB11	
		0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-1'	1'-2'	0'-0.5'	0'-0.5'	0'-0.5'	
Compositional Metals (mg/kg on a dry weight basis)																					
Cadmium	0.50	4.9	N/A	11	39	<1.1	N/A	7.7	9.8	<1.1	N/A	<1.1	<1.1	<1.1	<1.1	30	<1.1	<1.1	6.6	7.5	
Chromium	1.00	86	N/A	110	300	15	N/A	3000	1100	15	N/A	24	54	7.2	200	200	7.6	36	98	210	
Lead	10.00	190	N/A	390	1400	43	N/A	250	580	<22	N/A	44	190	<22	<22	1700	<22	55	460	420	
TCLP Metals (mg/L)																					
Cadmium	0.01	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.62	N/A	N/A	N/A	N/A	1.0
Chromium	0.01	N/A	N/A	N/A	N/A	N/A	N/A	0.028	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.0
Lead	0.20	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4.3	N/A	N/A	N/A	N/A	5.0

NOTES:

N/A Not analyzed.

Sample locations SB09, SB10 and SB11 were collected for background determination.

Section 3

CLOSURE PERFORMANCE STANDARDS

3.1 Objectives

ASF intends to clean close the area beneath the EAF baghouse in accordance with 40 CFR 265.111 and OAC 3745-66-11. The regulations indicate that ASF must close the facility in a manner that

- Minimizes the need for further maintenance; and
- Controls, minimizes, or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the groundwater, or surface water, or the atmosphere.

To accomplish this, ASF proposes the clean closure approach described in Subsection 3.2. As discussed earlier, soil testing indicates that only lead, cadmium, and chromium are present above levels of potential concern in the soils associated with the EAF dust waste management unit. BARIUM IS ALSO A CONSTITUENT OF CONCERN DUE TO THE PRACTICE OF DISPOSING WIRE WELDER DUST AT THE UNIT. The other TCLP metals are below regulatory criteria, and the TCLP organics were below detection limits.

3.2 Clean Closure Approach

The Pre-Closure Sampling and Analysis Program which was conducted by ASF as discussed in Subsection 2.3.1 determined that clean closure is feasible. Thus, the closure activities will consist of four major tasks:

- Excavation of soils with cadmium, chromium, BARIUM, and lead levels above the UCLs based on the site assessment.
- Conducting confirmatory soils sampling and analysis, and comparing the results to the UCLs to document that hazardous waste management activities have not impacted the remaining underlying soils.
- Placement of excavated material in the EAF for recycling, or disposed of at an off-site approved hazardous waste facility.
- Backfilling the excavation and compacting it with clean granular fill.

3.3 Determination of Upper Confidence Limits in Soils

Portions of the foundry, including the vicinity of the baghouse, were probably built on foundry sand and slag. Therefore, it is likely that foundry sand and slag will be encountered during excavation of soils beneath the baghouse. Since the purpose of the Closure Plan is to address the cleanup of wastes and residuals from the RCRA unit, it is necessary to differentiate between cadmium, chromium, BARIUM, and lead levels from the RCRA unit and those levels found elsewhere on the site. Thus, a background level at the foundry must be determined.

~~On January 7, 1992, as part of the Pre-Closure Sampling and Analysis Program as discussed in Subsection 2.3.1, three foundry samples were collected in areas not associated with the EAF baghouse at the Alliance facility. The locations of the background samples are shown in Figure 3-1. The background samples were collected at approximate depths of six inches and analyzed for compositional (total) cadmium, chromium, and lead. Based on the OEPA "Closure Plan Review Guidance", soils containing metals in the waste management areas will be considered "uncontaminated" if concentrations in the soils do not exceed the Upper Confidence Limit (mean of the concentrations of the background samples plus two times the standard deviation) for each of the three metals.~~

~~The material encountered in the background borings were generally of the same physical appearance as the material found beneath the EAF baghouse. The data from the results of the laboratory analysis of the background samples are contained in (see Appendix C for laboratory reports). The mean of the data plus two times the standard deviation results in a UCL of 12 mg/kg, 291 mg/kg, and 758 mg/kg for cadmium, chromium and lead, respectively (see Appendix D for calculations of the UCL's). The results are obtained by grouping all of the samples together. Because the UCL for lead using the above methodology exceeds the OEPA's upper limit cleanup standard for lead (150 mg/kg), the UCL for lead will be 150 mg/kg.~~

ASF WILL COLLECT A TOTAL OF 12 BACKGROUND SAMPLES AS ILLUSTRATED ON FIGURE 3-1a. THE 12 SOIL SAMPLING POINTS WERE SELECTED TO REPRESENT AREAS NOT AFFECTED BY ANY CONCENTRATED WASTE MANAGEMENT OR PRODUCT HANDLING ACTIVITIES. SAMPLES 1 THROUGH 6 ARE ON OFF-SITE PROPERTY OWNED BY ASF. SAMPLES 7 THROUGH 12 ARE ON THE ASF FOUNDRY PROPERTY. BACKGROUND SOIL WILL BE OF THE SAME TYPE OF SOIL

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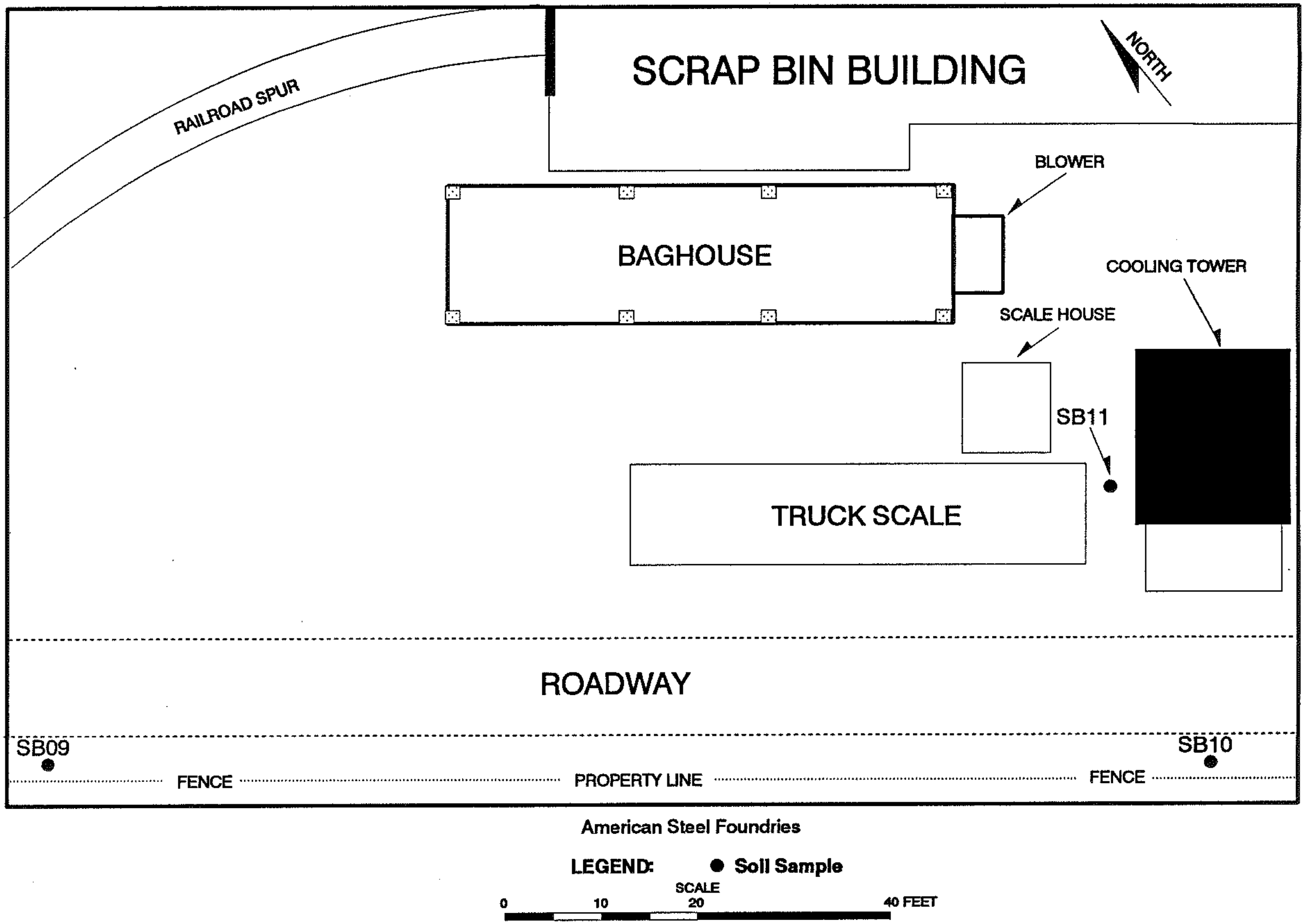


Figure 3-1 Background Foundry Soils Sampling Locations

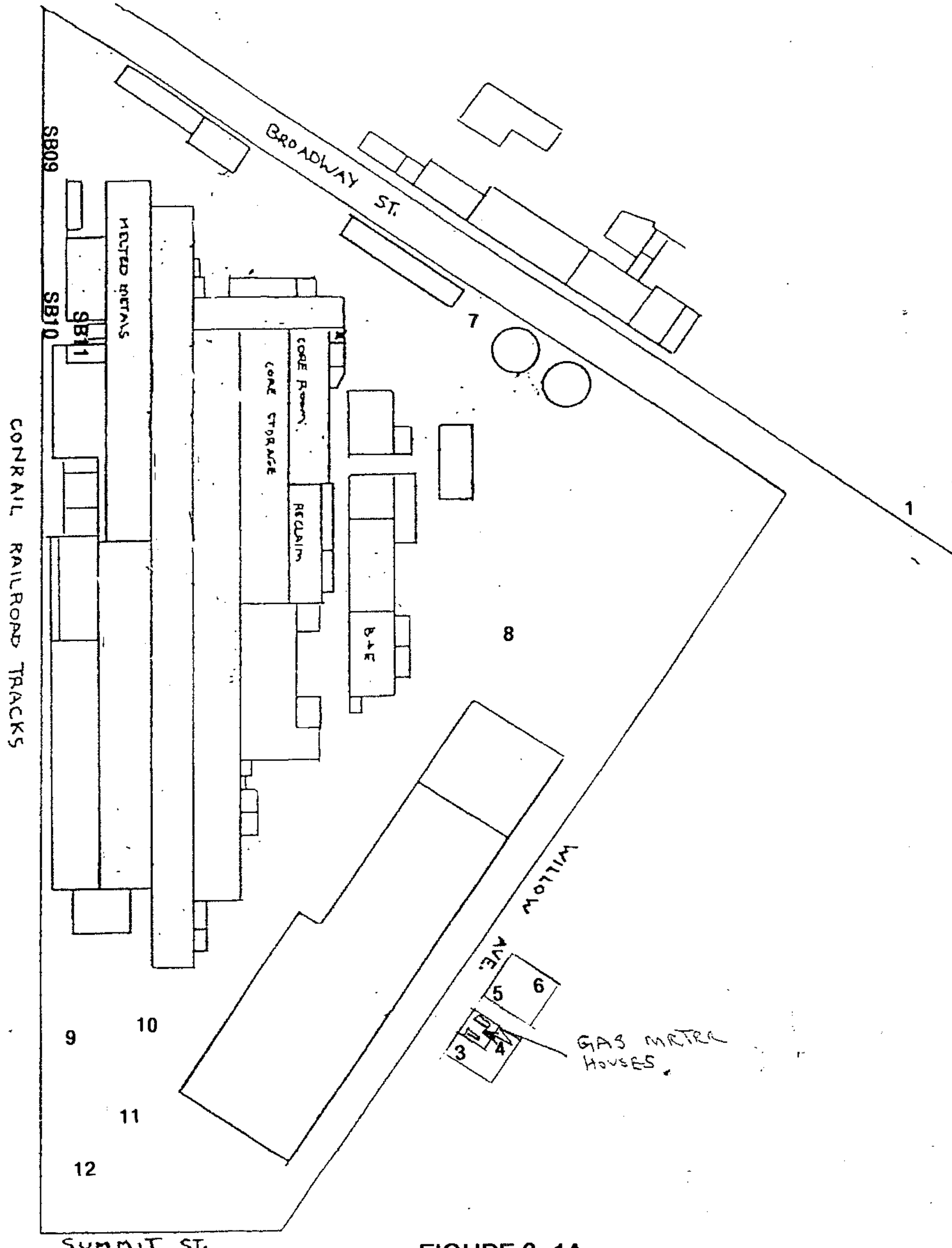


FIGURE 3–1A

12 BACKGROUND SOILS SAMPLING LOCATIONS

HORIZON AS THE COMPARISON SAMPLES. SAMPLE DEPTHS WILL BE FROM 12 TO 18 INCHES BELOW GRADE.

THE SAMPLE LOCATIONS ON FIGURE 3-1a ARE APPROXIMATE. IF NECESSARY TO AVOID PHYSICAL OBSTRUCTIONS, SUCH AS UNDERGROUND OR OVERHEAD UTILITIES, LOCATIONS MAY BE ADJUSTED SLIGHTLY. SIGNIFICANT SHIFTING OF LOCATIONS, SUCH AS TO A DIFFERENT AREA AWAY FROM THE FACILITY, WILL NOT BE MADE WITHOUT PRIOR OEPA APPROVAL. ADDITIONAL BACKGROUND SAMPLES MAY BE NECESSARY TO DETERMINE BACKGROUND CONDITIONS BASED ON THE RESULTS OF THE STATISTICAL ANALYSIS AS DESCRIBED BELOW.

AS STATED IN THE OEPA CLOSURE GUIDANCE (OEPA, 1991), THE UCL FOR EACH BACKGROUND CONSTITUENT OF CONCERN (BARIUM, CADMIUM, CHROMIUM, AND LEAD) WILL BE CALCULATED AS THE MEAN OF THE BACKGROUND POPULATION PLUS TWO TIMES THE STANDARD DEVIATION. THE UCL WILL BE USED AS THE POINT OF COMPARISON FOR SOIL SAMPLES COLLECTED IN THE CLOSURE AREA.

TO DETERMINE IF THE BACKGROUND POPULATION EFFECTIVELY REFLECTS A NORMAL DISTRIBUTION, PROBABILITY PLOTS AND STATISTICAL TESTS WILL BE COMPLETED ON THE SAMPLE POPULATION. THE TESTS WHICH ARE TO BE USED TO DETERMINE THIS WILL BE EITHER THE SHAPIRO-WILK TEST, OR THE KOLMAGAROV-SMIRNOV TEST WITH LILLEFORS CRITICAL VALUES.

IF THE BACKGROUND POPULATION IS NOT CONSIDERED TO BE NORMALLY DISTRIBUTED BY VIRTUE OF THE TESTS DESCRIBED ABOVE, ONE OR A COMBINATION OF THE FOLLOWING ACTIONS WILL BE TAKEN AND SUBMITTED TO THE OEPA FOR APPROVAL:

- ADDITIONAL BACKGROUND DATA WILL BE COLLECTED.
- EXISTING BACKGROUND DATA CONSIDERED TO BE STATISTICALLY OUTLYING WILL BE DISCARDED, AND NEW BACKGROUND SAMPLES MAY BE TAKEN FOR THOSE THAT WERE ELIMINATED.
- THE DATA WILL BE TRANSFORMED TO APPROXIMATE A NORMAL DISTRIBUTION.
- A NONPARAMETRIC STATISTICAL PROCEDURE WILL BE USED.

Section 4
CLOSURE METHOD

4.1 Approach

During closure, materials which have been determined to be associated with baghouse activities will be excavated and placed into Visqueen-lined roll-off boxes on site. Once the excavation is complete, the material will either be fed back into the EAF and recycled as a beneficial product or disposed of off-site at an approved hazardous waste facility. After excavation is complete, additional sampling will be conducted as described in Section 7. The following sections describe the closure methods.

4.2 Excavation of Contaminated Material

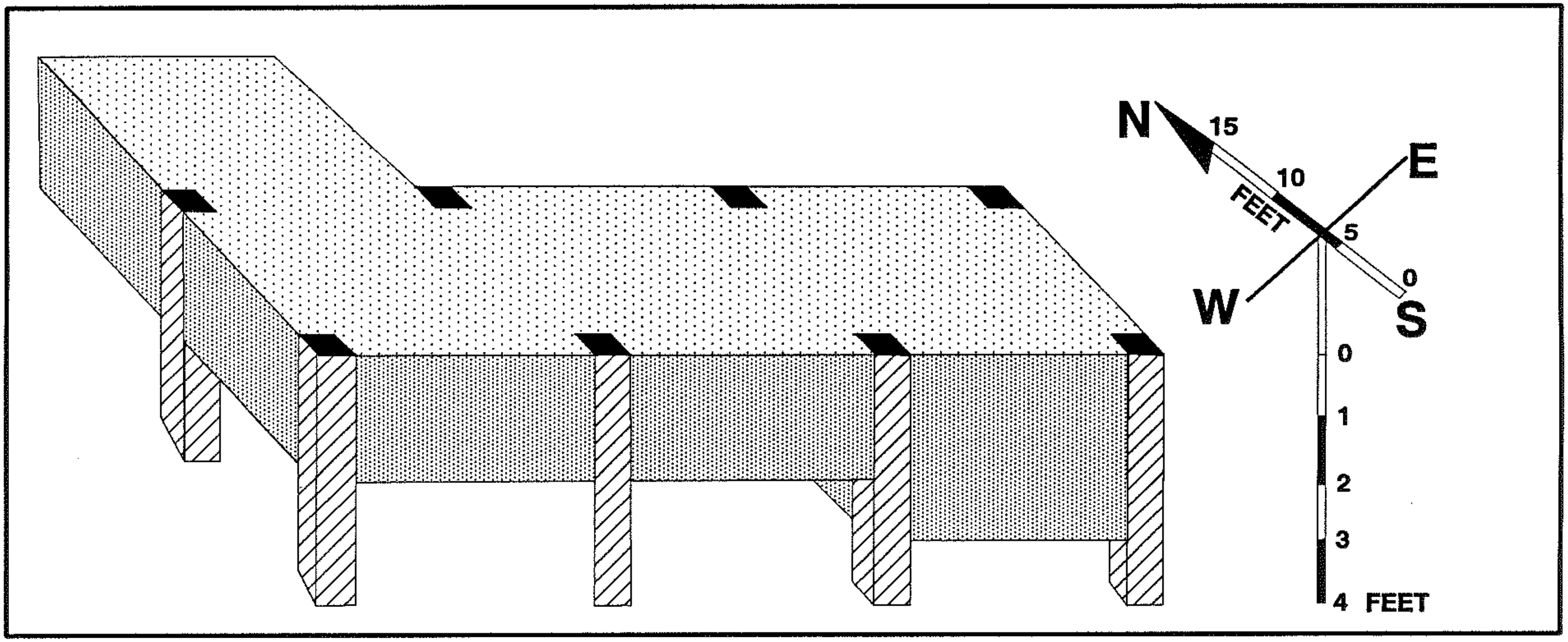
The extent of contaminated materials was estimated as described in Subsection 2.3.1. Excavation depths based on these estimates and the structural integrity of the baghouse and building footings are determined to be two feet below grade in the front two-thirds of the baghouse, and no more than three feet in the back one-third of the baghouse. During closure, ASF may need to use a phased approach during excavation activities to insure the structural integrity of the baghouse. This phased approach will include the following steps:

- excavating one third of the soils beneath the baghouse,
- collecting verification samples WITHIN EACH PHASE,
- backfilling with clean granular soil as described in Section 6; and,
- repeating the above steps on the next third of the baghouse.

VERIFICATION SAMPLES WILL INCLUDE LOCATIONS ON THE BOTTOM AND ON THE SIDES OF THE EXCAVATION. SIDE SAMPLES WILL BE TAKEN TOWARD THE CENTER AND BOTTOM OF THE SAMPLING GRID.

The total amount of contaminated material to be excavated is estimated at 73 cubic yards. Figure 4-1 contains a graphic representation of the excavation.

IF VERIFICATION SAMPLES ARE FOUND TO CONTAIN HAZARDOUS WASTE CONSTITUENTS ABOVE THE CLEAN LEVELS, AFTER THE UNLIKELY EVENT THAT THE EXCAVATION HAS BEEN BACKFILLED, THE AGENCY SHALL BE NOTIFIED IN ACCORDANCE WITH SECTION 2.3.2. THE



American Steel Foundries

LEGEND:

AREA OF EXCAVATION

DEPTH OF EXCAVATION

BAGHOUSE FOOTING

Figure 4-1 Graphic Representation of Baghouse Area Excavation

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BACKFILL MATERIAL WILL BE TREATED AS A HAZARDOUS WASTE AND THE REMOVAL WILL BE SPECIFIED IN THE AMENDED CLOSURE PLAN.

4.3 Water Removal

Due to the time frame of the closure, the depth of excavation, and the local geology it may not be necessary to operate a dewatering system to remove water that accumulates from the excavation during closure as a result of precipitation, groundwater seepage, surface water run-off, and excavated material dewatering. ASF will construct a surface water diversion system (temporary dikes or berming) around the excavation if the excavation activities cannot be completed in one day, or if rainfall appears possible during construction activities. If necessary, ASF will investigate additional means of preventing rainwater from contacting the contaminated material. If dewatering should be necessary, the water will be sampled and analyzed for the parameters required by the Publicly Owned Treatment Works (POTW). If results of the analyses meet the POTW requirements, ~~the water will be discharged directly to the sanitary sewer~~ WRITTEN PERMISSION SHALL BE OBTAINED FROM THE POTW IN ORDER TO DISCHARGE WATER DIRECTLY TO THE SANITARY SEWER. If results of the analyses indicate that discharge of the water to the POTW is not acceptable, the water will be pumped into tank trucks, or other acceptable containers, to be taken off-site for the appropriate treatment.

Section 5
MATERIAL DISPOSAL

5.1 Contaminated Materials

Contaminated materials will either be fed back into the EAF or disposed of off-site at an approved hazardous waste facility. As discussed in Subsection 2.3.1, the contaminated materials are predominately limestone materials. Limestone is used daily as a flux agent in the process of melting metal in the EAF. A standard charge will consist of 550 pounds of limestone as a flux which assists in drawing the impurities into the slag material. It is estimated that ASF will utilize the limestone in 30 days. The materials will be recycled as a beneficial product through the EAF.

CONTAMINATED SOILS WILL BE DISPOSED OF OFF-SITE AT AN APPROVED HAZARDOUS WASTE FACILITY.

5.2 Water

Accumulated water removed from the excavation and water from decontamination activities will be analyzed to determine if it can be discharged to the POTW in accordance to local regulations, or if off-site treatment will be required. If acceptable, ~~the water will be discharged to the POTW~~ ASF SHALL REQUEST WRITTEN PERMISSION FROM THE POTW IN ORDER TO DISCHARGE. If the water is not accepted, it will be collected for off-site treatment as described in Subsection 4.3.

Section 6
BACKFILLING OF EXCAVATION

After excavation of the contaminated material has been completed as described in Section 4, and the clean closure of the unit has been confirmed through implementation of the soil sampling and analysis plan (see Section 7), the unit will be backfilled and graded. Backfill material will consist of clean granular material and general soils as needed from an off-site borrow source.

The fill materials will be placed and compacted until the pre-excavation grades are achieved. The final grade will promote run-off and will blend with the surrounding terrain. The area will be prepared as needed to ensure that settlement and drainage will not present a problem for the intended use of the area.

Section 7
CONFIRMATORY SOIL SAMPLING AND ANALYSIS PLAN

7.1 Approach

To confirm that clean closure has been achieved, soil samples from ~~beneath~~ the RCRA unit will be collected for comparison to UCLs. This will be done after the excavation of contaminated materials has been completed, but prior to backfilling the excavation. OEPA guidance (1991) provides equations which may be used to determine grid intervals and the number of samples in a given area. Using Equation 2 (for small sites less than 3 acres) for the RCRA unit, results in a grid interval of 64 square feet (8 feet). The guidance states that grid intervals of 25 to 100 feet are common for separation of samples for a relatively large unit. The confirmatory soil sampling plan for ASF will consist of a 8 foot grid, supplemented with additional samples, directed at specific locations to provide increased coverage and to reduce the effective grid interval. A total of 20 samples will be collected from soil beneath the RCRA unit AND ON THE SIDES OF THE UNIT. SAMPLES TAKEN ON THE SIDES SHALL BE CENTERED AND TOWARD THE BOTTOM OF THE GRID SECTION.

7.2 Sample Locations

A generalized 8 foot grid pattern will be used for locating soil samples. The grid pattern is illustrated in Figure 7-1. Additional samples will be directed toward the limits of the unit to provide increased coverage of each unit. Final sample locations may be altered slightly in the field due to obstructions or field conditions.

Grid samples will be sampled continuously to a depth of 2 feet below ~~the bottom of~~ the SURFACE OF THE excavation. Samples will be analyzed in 12 inch increments. Samples will be classified as to soil type to verify that they are soils from the same strata as the background samples.

Specific sample collection techniques are contained in Appendix F.

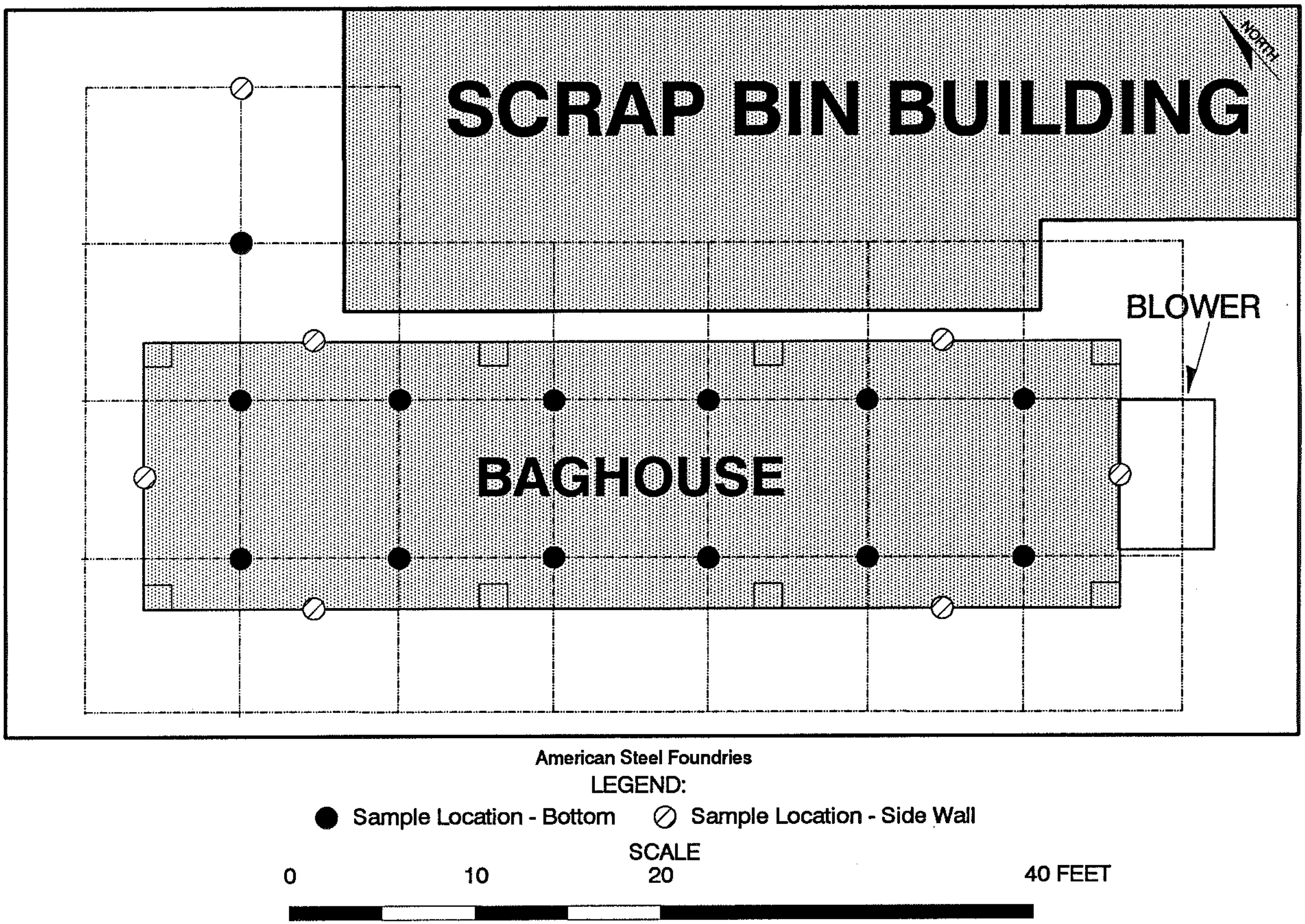

Figure 7-1 Baghouse Area Gid Sampling Illustration

7.3 Analysis and Comparison to Upper Confidence Limits

To determine if clean closure has been achieved, samples of the underlying soil will be laboratory-analyzed. Total cadmium, chromium, BARIUM, and lead levels in soils will be measured by USEPA Method 6010~~, with the detection limits of 0.5 mg/kg, 1.0 mg/kg, and 10 mg/kg, respectively~~. The results will be compared to the closure limits as established in Section 3. Initially, the soil sample from the uppermost sample interval (0-to-1 foot) will be analyzed. If the results of the analysis from all locations within the unit indicated that cadmium, chromium, BARIUM, and lead concentrations are below the closure limits, clean closure will have been achieved.

If laboratory results indicate that cadmium, chromium, BARIUM, or lead are present at concentrations above the closure limits in the upper sample, additional deeper samples will be analyzed. Based on these results, if feasible, additional soils may be excavated. If additional excavation is unfeasible due to structural foundation limitations, ~~a modified or contingent closure plan may be pursued~~ OR ANY OTHER UNEXPECTED EVENT, ASF WILL FORMALLY SUBMIT AN AMENDED CLOSURE PLAN IN ACCORDANCE WITH OAC RULE 3745-66-12.

Section 8

HEALTH AND SAFETY

Prior to starting the closure activities, a site-specific Health and Safety Plan will be developed by each company involved with closure activities to cover their workers on the site. The workers' employer will be responsible for implementing the plan, directing the training of personnel, and providing safety equipment and incidentals as required.

At a minimum, the plan(s) will address the following:

- Hazard Evaluation, Chemical and Physical
- Levels of Protection
  - Personal Protective Clothing
  - Respiratory Protection
- Air Monitoring
- Site Control
  - Work Zones
  - Decontamination Procedures: Personnel and Equipment
  - Site Security
- Contingency Plan
- Medical Evaluation and Certification
- Worker Training Certification
- Site Organization and Identification of Roles and Responsibilities

The plan(s) will be directed in compliance with applicable federal, state, and local requirements. The following references may be used to assist in the development of the Health and Safety Plan(s):

- "Standard Operating Safety Guides," USEPA, November 1984.
- "Occupational Safety and health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, October 1985.
- U.S. Department of Labor, Occupational Safety and Health Standards and Regulations, including, but not limited to; 29 CFR 1910.120 on Hazardous Waste Operations.

Prior to closure activities, RMT will submit a Health and Safety Plan for their personnel to the OEPA.

Section 9
DECONTAMINATION

Specific decontamination procedures are dependent on the equipment used. General decontamination procedures are described below.

9.1 Site Control

A temporary fence will be installed around the closure activities. The ASF site is guarded by a 24-hour security force. Access to the closure construction area will be restricted to personnel involved in closure activities and authorized ASF personnel. Hazard tape and signs identifying the closure construction area will be installed at access points.

9.2 Personnel Decontamination

Personnel leaving the unit closure area after contact with residual waste materials or accumulated rinsate will be decontaminated in accordance with OSHA 1910.120. The contractor will be responsible for ensuring that his personnel comply with the decontamination procedures specified in OSHA 1910.120. Personnel decontamination equipment and facilities will be located within the closure area. A tentative location is shown on Figure 9-1. The exact location will be determined based on logistics by the contractor.

9.3 Equipment Decontamination

Construction and cleaning equipment in contact with potentially contaminated materials will be decontaminated prior to exiting the closure construction area. Equipment will remain within the closure boundary, if at all possible, to minimize the need for decontamination. To minimize the generation of free liquids, equipment will be decontaminated by physical methods wherever possible (scraping, brushing, etc.). Where necessary, the contractor will use a high-pressure water wash to dislodge solids from exposed surfaces. Pressure washing will take place on a decontamination pad constructed by the contractor. The on-site decontamination pad will consist of a liner and graded

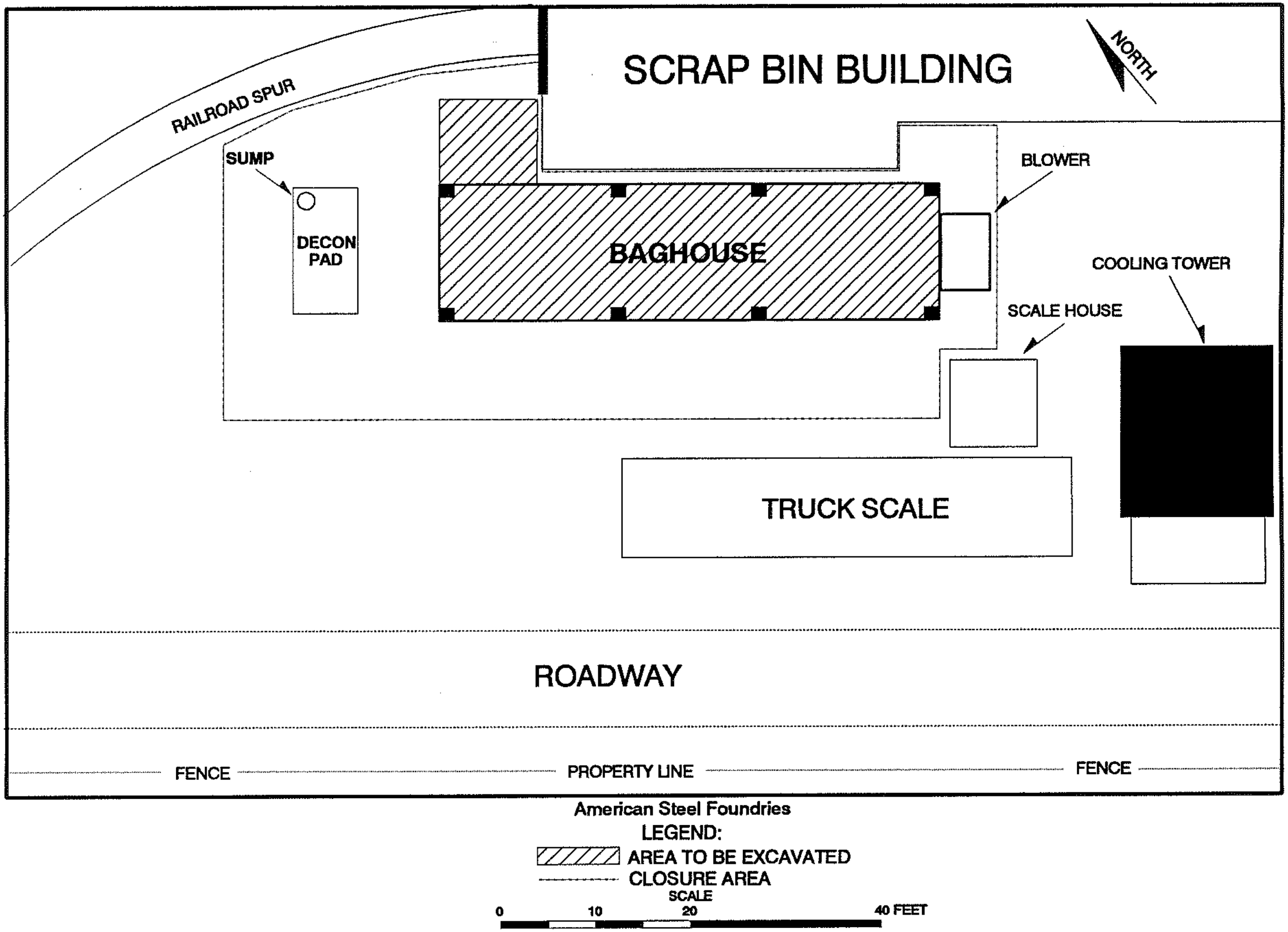

Figure 9-1 Closure Area and Decontamination Pad Placement

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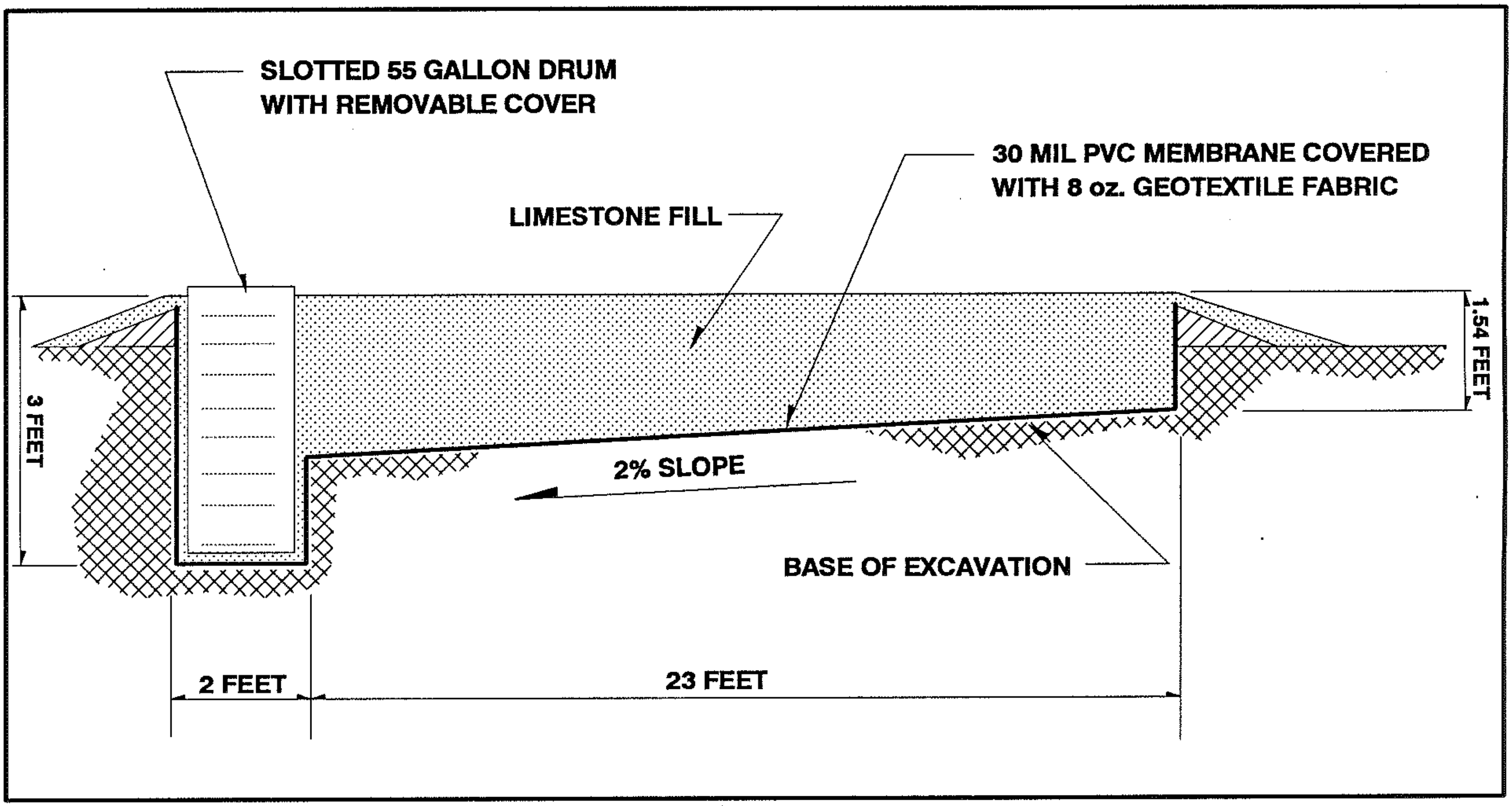
gravel surface with a sump to collect rinsate. A typical detail of the pad is shown in Figure 9-2. A possible location of the pad is shown on Figure 9-1. Final location of the pad will be determined by the contractor based on logistics.

9.4 Residuals Management

Residues generated from decontamination of personnel and equipment, and the visqueen liner and cover of the roll-off boxes, will be managed as hazardous waste. Residues, including discarded personnel protective equipment, will be placed into a hazardous waste container designated by ASF. Liquid residues will be collected, sampled, and disposed of as discussed in Subsection 4.3.

9.5 Closure of Decontamination Pad

If the decontaminated pad is primarily limestone, the material will be excavated and either recycled in the same manner as the contaminated materials as described is Subsection 5.1, or sampled to determine if the material is hazardous or nonhazardous. However, if the decontamination pad is not primarily limestone, the decontaminated pad will be sampled to determine if the material is hazardous or nonhazardous. If hazardous, the material will be excavated and transported off-site to a permitted landfill for treatment and disposal. If nonhazardous, the material will be excavated and transported to an off-site permitted landfill. It is not likely that a release of contaminants will occur to the soils underlying the decontamination pad due to the use of a liner. If a visual inspection of the soils beneath the pad warrants a possible release of contaminants from the pad, the underlying soils will be sampled, excavated and transported to an off-site permitted landfill, as needed.



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American Steel Foundries

Figure 9-2 Typical Detail of Decontamination Pad Construction

Section 10

ESTIMATED SCHEDULE AND CLOSURE DATE

RCRA requirements (265.112 and 265.113) specify the following closure schedule:

- Closure must begin within thirty (30) days after receiving the final volume of hazardous waste, or thirty (30) days after approval of the Closure Plan, whichever is later.

- Wastes must be treated, removed from the unit or disposed on-site within ninety (90) days after receiving the final volume of hazardous waste, or ninety (90) days after approval of the Closure Plan, whichever is later.

- Closure activities must be complete within 180 days after receiving the final volume of hazardous waste, or 180 days after approval of the Closure Plan, whichever is later.

- AN ON-SITE PROJECT REPRESENTATIVE WILL BE PRESENT DURING CLOSURE ACTIVITIES, STARTING WITH WASTE REMOVAL THROUGH VERIFICATION SAMPLING AND BACKFILLING. THE PROJECT REPRESENTATIVE WILL BE UNDER THE DIRECT SUPERVISION OF THE QUALIFIED ENGINEER, LICENSED TO PRACTICE IN OHIO.

Preparation of the Closure Documentation Report will be completed within sixty (60) days following the completion of the closure activities.

A closure schedule is shown in Table 10-1.

TABLE 10-1 CLOSURE SCHEDULE	
Activity	**Timing (Days)**
Closure Plan Approval	0
Preparation of Final Plans and Contractor Procurement	0 - 90
Waste Excavation and Treatment • Mobilization and Set-Up • Excavation of Contaminated Material • Placement of Material in EAF	 90 - 120 120 - 130 130 - 160
Confirmatory Soil Sampling and Analysis	130 - 150
Backfilling of Excavation	140 - 160
Documentation Report Preparation	150 - 180
Closure Submittal	180

REVISED: MAY 1993

TABLE 1 CLOSURE COST ESTIMATE ASF - BROADWAY STREET FACILITY, ALLIANCE, OHIO					
UNIT OF MAJOR ACTIVITY	TASK	UNIT	QUANTITY	UNIT COST	TOTAL COST*
CONTRACTOR IMPLEMENTATION					
Mobilization	----	Lump Sum	1	$1,000	$1,000
Labor and Equipment	Excavation, decontamination and backfilling beneath the baghouse	Days	5	$2,500	$12,500
Decontamination Pad Construction	Construction and dismantling of the decontamination pad	Lump Sum	1	$2,500	$2,500
Concrete Pad Construction	Concrete pad and curbing construction	Lump Sum	1	$10,000	$10,000
RESIDUALS MANAGEMENT					
Solid Hazardous Waste	Off-site transport and treatment of solid wastes	Cubic Yards	90	$300	$27,000
Rinsate	Off-site transport and treatment of rinsate	Gallons	110	$0.40	$44.00
DOCUMENTATION ACTIVITIES					
On-Site Engineering Documentation	----	Lump Sum	1	$5,000	$5,000
Soil Sampling	----	Lump Sum	1	$6,000*	$6,000*
Soil Analysis	----	Sample	38*	$150*	$5,700*
Rinsate Analysis	----	Sample	2	$2,000	$4,000
Documentation Report	----	Lump Sum	1	$5,000	$5,000
CLOSURE COST					$78,744*
Contingency	----	Lump Sum	1	15%	$11,812*
TOTAL CLOSURE COSTS					$90,556*

P:\DATA\PROJECTS\ASF\COST.EST

* = revised May 1993

Section 11

CLOSURE DOCUMENTATION

An independent, QUALIFIED, registered professional engineer LICENSED TO PRACTICE IN THE STATE OF OHIO (or representative) will be present during all critical closure activities AND WILL SUBMIT THE CERTIFICATION OF CLOSURE. THE REPRESENTATIVE WILL BE UNDER THE DIRECT SUPERVISION OF THE ABOVE-MENTIONED ENGINEER, AND WILL BE ON-SITE DURING ALL CRITICAL EVENTS OF CLOSURE.

When closure is completed, the independent engineer will document that the closure unit has been closed in substantial conformance with the approved Closure Plan. Closure will be documented by both ASF and the independent registered engineer. Documentation will be submitted to the OEPA within 60 days of the completion of closure activities. The closure documentation report will consist of the following:

- The volume of waste removed.
- A description of waste handling and transport.
- Copies of Waste Manifests from removal of waste and waste residues, if any.
- A description of the sampling and analytical methods used.
- A chronological summary of closure activities and the costs involved.
- Photographic documentation of closure.
- Test performed, methods, and results.

The owner and engineer will sign the following certification statement as required by OAC 3745-50-42 (D):

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Information which supports the Closure Documentation Report and the certification will be retained, pending approval of the Documentation Report.

Section 12

STATUS AFTER CLOSURE

Following the receipt of the laboratory analyses documenting that all hazardous constituents have been removed from the Pangborn baghouse, the closure OF THE EAF BAGHOUSE UNIT will be complete. Once clean closure is achieved, a concrete slab will be placed over the area to prevent future soil contamination caused by the baghouse.

FOLLOWING CLOSURE OF THE EAF BAGHOUSE UNIT, ACCORDING TO THE OEPA, THE ASF FACILITY WILL REMAIN A TSD FACILITY DUE TO THE REMAINING TWO RCRA UNITS CURRENTLY UNDER NEGOTIATION.

Section 13

REFERENCES

OEPA. 1991. "Closure Plan Review Guidance," OEPA DSHWM - Columbus.

USEPA. 1984. Standard Operating Safety Guides. November 1984.

NIOSH/OSHA/USCG/EPA. 1985. "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985.

U.S. Department of Labor, Occupational Safety and Health Standards and Regulations, including, but not limited to, 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response.

Appendix A

UNDERLYING SOIL ANALYSIS LABORATORY RESULTS

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76796
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB01.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	86.7	%
Cadmium, Total	4.9	mg/kg dry wt.
Chromium, Total	86	mg/kg dry wt.
Lead, Total	190	mg/kg dry wt.

Eric L Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76799
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB02.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	88.4	%
Cadmium, Total	11	mg/kg dry wt.
Chromium, Total	110	mg/kg dry wt.
Lead, Total	390	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.®
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76801
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB03.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.7	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	15	mg/kg dry wt.
Lead, Total	43	mg/kg dry wt.

Eric L Thomas
Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76805
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB04.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	95.2	%
Cadmium, Total	7.7	mg/kg dry wt.
Chromium, Total	3000	mg/kg dry wt.
Lead, Total	250	mg/kg dry wt.

Eric L Thomas
Eric L. Thomas, Inorganic Supervisor

INC.

RMT®

LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76809
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB05.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.1	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	15	mg/kg dry wt.
Lead, Total	<22	mg/kg dry wt.

Eric L Thomas

Eric L. Thomas, Inorganic Supervisor

LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76813
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB06.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.1	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	24	mg/kg dry wt.
Lead, Total	44	mg/kg dry wt.

Eric L Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76814
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB06.24
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.7	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	54	mg/kg dry wt.
Lead, Total	190	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76815
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB07.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	92.9	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	7.2	mg/kg dry wt.
Lead, Total	<22	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76816
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB07.24
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.0	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	8.5	mg/kg dry wt.
Lead, Total	<22	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76819
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB08.12
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	87.7	%
Cadmium, Total	30	mg/kg dry wt.
Chromium, Total	200	mg/kg dry wt.
Lead, Total	1700	mg/kg dry wt.

Eric L Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76820
PROJECT #: 02169.04
WORK ORDER #: 920110-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB08.24
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	91.3	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	7.6	mg/kg dry wt.
Lead, Total	<22	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.®
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77849
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB02.24
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	87.3	%
Cadmium, Total	39	mg/kg dry wt.
Chromium, Total	300	mg/kg dry wt.
Lead, Total	1400	mg/kg dry wt.

Michael F. Wagnitz, for
Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77850
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB04.12
SAMPLE COLLECTOR: TD

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
METALS (mg/L)

PARAMETER	MTD	PQL	SPIKE RECOVERY	THRESHOLD LIMIT	RESULT	ADJUSTED RESULT
Chromium	6010	0.010	91%	5.0	0.026	0.028

Michael F. Wagnitz, for

Eric L. Thomas, Inorganic Supervisor

Methods from USEPA SW846, 3rd Edition.
PQL : practical quantitation limit
MSA : Method of Standard Addition, acceptable correlation coefficient value (r) greater than 0.995.
ADJUSTED RESULT : adjusted for % recovery (method 1311.)

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77850
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB04.12
SAMPLE COLLECTOR: TD

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

EXTRACTION 1311

PARAMETER	RESULT	UNITS
Total Sample Wt.	100.0	grams
pH (After 5 min.)	10.3	pH units
pH (After heating)	7.4	pH units
Extraction Solution	2	
Final pH	6.7	pH units
Extraction pH	2.9	pH units
Leaching Date	02/06/92	

Michael A. Wagnitz, for

Eric L. Thomas, Inorganic Supervisor

METHOD 1311, AS PUBLISHED IN FED. REGISTER; JUNE 29,1990;
40 CFR PARTS 261, 264, 265, 268, 271, AND 302.

LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77851
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB04.24
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	90.0	%
Cadmium, Total	9.8	mg/kg dry wt.
Chromium, Total	1100	mg/kg dry wt.
Lead, Total	580	mg/kg dry wt.

Michael J. Wagnitz, for

Eric L. Thomas, Inorganic Supervisor

LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77852
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB08.12
SAMPLE COLLECTOR: TD

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
METALS (mg/L)

PARAMETER	MTD	PQL	SPIKE RECOVERY	THRESHOLD LIMIT	RESULT	ADJUSTED RESULT
Cadmium	6010	0.010	94%	1.0	0.58	0.62
Lead	6010	0.20	95%	5.0	4.1	4.3

Michael J. Wagnitz, for

Eric L. Thomas, Inorganic Supervisor

Methods from USEPA SW846, 3rd Edition.
PQL : practical quantitation limit
MSA : Method of Standard Addition, acceptable correlation coefficient value (r) greater than 0.995.
ADJUSTED RESULT : adjusted for % recovery (method 1311.)

RMT INC
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 77852
PROJECT #: 02169.04
WORK ORDER #: 920204-0216904

REPORT DATE: 02/12/92
COLLECTION DATE: 01/07/92
STATION ID: SB08.12
SAMPLE COLLECTOR: TD

TOXICITY CHARACTERISTIC LEACHING PROCEDURE

EXTRACTION 1311

PARAMETER	RESULT	UNITS
Total Sample Wt.	100.0	grams
pH (After 5 min.)	9.1	pH units
pH (After heating)	8.2	pH units
Extraction Solution	2	
Final pH	5.6	pH units
Extraction pH	2.9	pH units
Leaching Date	02/06/92	

Michael F. Wagnitz, for

Eric L. Thomas, Inorganic Supervisor

METHOD 1311, AS PUBLISHED IN FED. REGISTER; JUNE 29,1990;
40 CFR PARTS 261, 264, 265, 268, 271, AND 302.

Appendix B

EAF BAGHOUSE DUST ANALYSIS LABORATORY RESULTS

Date : 7/11/91

Date Received : 6/10/91
Date Extracted : 6/20/91
Date Analyzed : 7/6-7/8/91

Analysis For : American Steel Foundries

ASAP # : 91060155

Customer I.D. : 061001 EAF Dust

TCLP Contaminants

PARAMETER/(EPA HW No.[1])		DL mg/L	RL mg/L	RESULTS mg/L
Benzene	(D018)	0.05	0.5	BDL
Carbon tetrachloride	(D019)	0.05	0.5	BDL
Chlorobenzene	(D021)	0.05	100.0	BDL
Chloroform	(D022)	0.05	6.0	BDL
o-Cresol	(D023)	0.1	200.0	BDL
m-Cresol	(D024)	0.1	200.0	BDL
p-Cresol	(D025)	0.1	200.0	BDL
Cresol	(D026)	0.1	200.0	BDL
1,4-Dichlorobenzene	(D027)	0.1	7.5	BDL
1,2-Dichloroethane	(D028)	0.05	0.5	BDL
1,1-Dichloroethylene	(D029)	0.05	0.7	BDL
2,4-Dinitrotoluene	(D030)	0.02	0.13	BDL
Hexachlorobenzene	(D032)	0.02	0.13	BDL
Hexachlorobutadiene	(D033)	0.1	0.5	BDL
Hexachloroethane	(D034)	0.1	3.0	BDL
Methyl ethyl ketone	(D035)	0.5	200.0	BDL
Nitrobenzene	(D036)	0.1	2.0	BDL
Pentachlorophenol	(D037)	0.1	100.0	BDL
Pyridine	(D038)	0.1	5.0	BDL
Tetrachloroethylene	(D039)	0.05	0.7	BDL
Trichloroethylene	(D040)	0.05	0.5	BDL
2,4,5-Trichlorophenol	(D041)	0.1	400.0	BDL
2,4,6-Trichlorophenol	(D042)	0.1	2.0	BDL
Vinyl chloride	(D043)	0.05	0.2	BDL

DL = Detection Limit
RL = Regulatory Limit
Method : EPA SW 846(8240,8270)

BDL = Below Detection Limit
1 = Hazardous Waste Number

ASAP TECHNICAL SERVICES, INC.
19701 SOUTH MILES ROAD, WARRENSVILLE HEIGHTS, OHIO 44128
TEL: (216) 663-0808 • (800) 969-0808
FAX: (216) 663-0656

SURROGATE RECOVERIES

ASAP # : 91060155

Customer I.D. : 061001

PARAMETER	% RECOVERY	ACCEPTABLE LIMITS
Volatile Organic Compounds		
1,2-Dichloroethane-d4	115	70 - 121
Toluene-d8	114	81 - 117
Bromofluorobenzene	86	74 - 121
BN/AP Compounds*		
Nitrobenzene-d5	69	23 - 120
2-Fluorobiphenyl	51	30 - 115
Terphenyl-d14	58	18 - 137
2-Fluorophenol	14	25 - 121
Phenol-d6	14	24 - 133
2,4,6-Tribromophenol	30	10 - 122

* Sample Matrix interferences resulted in poor acid phenolics (AP) surrogate recoveries.

ASAP TECHNICAL SERVICES, INC.
19701 SOUTH MILES ROAD, WARRENSVILLE HEIGHTS, OHIO 44128
TEL: (216) 663-0808 • (800) 969-0808
FAX: (216) 663-0656

Date : 7/11/91

Date Received : 6/10/91
Date Analyzed : 7/9/91

Analysis For : American Steel Foundries

ASAP # : 91060155

Customer I.D. : 061001 EAF Dust

CHARACTERISTIC of TCLP
METALS

ELEMENT/(EPA HW No.[1])		DL mg/L	RL mg/L	RESULTS mg/L
Arsenic	(D004)	0.2	5.0	BDL
Barium	(D005)	0.008	100.0	1.82
Cadmium	(D006)	0.01	1.0	12.6
Chromium	(D007)	0.01	5.0	BDL
Lead	(D008)	0.05	5.0	12[illegible]
Mercury	(D009)	0.0002	0.2	BDL
Selenium	(D010)	0.30	1.0	B[illegible]
Silver	(D011)	0.006	5.0	B[illegible]

DL = Detection Limit

RL = Regulatory Limit

BDL = Below Detection Limit

1 = Hazardous Waste Number

Methods : EPA Method SW 846(6010)
Mercury SW 846(7470)
Extraction SW 846(1311)

ASAP TECHNICAL SERVICES, INC.
19701 SOUTH MILES ROAD, WARRENSVILLE HEIGHTS, OHIO 44128
TEL: (216) 663-0808 • (800) 969-0808
FAX: (216) 663-0656

Appendix C

FOUNDRY BACKGROUND ANALYSIS LABORATORY RESULTS

RMT INC.® LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76892
PROJECT #: 02169.04
WORK ORDER #: 920113-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB09.06
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	88.5	%
Cadmium, Total	<1.1	mg/kg dry wt.
Chromium, Total	36	mg/kg dry wt.
Lead, Total	55	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC.
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76893
PROJECT #: 02169.04
WORK ORDER #: 920113-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB10.06
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	88.6	%
Cadmium, Total	6.6	mg/kg dry wt.
Chromium, Total	98	mg/kg dry wt.
Lead, Total	460	mg/kg dry wt.

Eric L Thomas

Eric L. Thomas, Inorganic Supervisor

RMT INC
LABORATORIES

CLIENT: AMERICAN STEEL FOUNDRIES
SAMPLE #: 76894
PROJECT #: 02169.04
WORK ORDER #: 920113-0216904

REPORT DATE: 01/27/92
COLLECTION DATE: 01/07/92
STATION ID: SB11.06
SAMPLE COLLECTOR: TD

INORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
Total Solids	90.7	%
Cadmium, Total	7.5	mg/kg dry wt.
Chromium, Total	210	mg/kg dry wt.
Lead, Total	420	mg/kg dry wt.

Eric L. Thomas

Eric L. Thomas, Inorganic Supervisor

Appendix D

CALCULATIONS FOR UPPER CONFIDENCE LIMITS

REVISED: MAY 1993

CALCULATIONS FOR UPPER CONFIDENCE LIMITS

1. CALCULATION FORMULAS

1.1 Parameters and Values

PARAMETER	SAMPLE LOCATION		
	SB09	SB10	SB11
CADMIUM	<1.1	6.6	7.5
CHROMIUM	36.0	98.0	210.0
LEAD	55.0	460.0	420.0

1.2 Calculation for mean

$\text{Mean}(\mu) = \sum\chi / \eta$

1.3 Calculation for standard deviation

$\text{Standard Deviation} = \left[\sum(\chi-\mu)^2 / \eta-1 \right]^{1/2}$

where:

$[\;]^{1/2}$	Square Root
$\sum(\chi-\mu)^2$	Sum of the data values minus the mean of the data values, SQUARED
$\eta-1$	Number of observations minus one

1.4 Calculation for Upper Confidence Limits

$\text{UCL} = 2(\text{Standard Deviation}) + \text{Mean}(\mu)$

2. CALCULATION OF CADMIUM UCL

$$\text{Mean}(\mu) = 1.1 + 6.6 + 7.5 / 3$$
$$= 15.2 / 3$$
$$= \mathbf{5.07}$$

$$\text{Standard Deviation} = \left[(1.1 - 5.07)^2 + (6.6 - 5.07)^2 + (7.5 - 5.07)^2 / 3 - 1 \right]^{1/2}$$
$$= \left[15.7609 + 2.3409 + 5.9049 / 2 \right]^{1/2}$$
$$= \left[24.0067 / 2 \right]^{1/2}$$
$$= \left[12.00335 \right]^{1/2}$$
$$= 3.464585112$$
$$= \mathbf{3.46}$$

$$\text{Cadmium UCL} = 2(3.46) + 5.07$$
$$= 11.99$$
$$= \mathbf{12\ ppm}$$

3. CALCULATION OF CHROMIUM UCL

$$\text{Mean}(\mu) = 36.0 + 98.0 + 210.0 / 3$$
$$= 344.0 / 3$$
$$= \mathbf{114.67}$$

$$\text{Standard Deviation} = \left[(36.0 - 114.67)^2 + (98.0 - 114.67)^2 + (210.0 - 114.67)^2 / 3 - 1 \right]^{1/2}$$
$$= \left[6188.9689 + 277.8889 + 9087.8089 / 2 \right]^{1/2}$$
$$= \left[1554.6667 / 2 \right]^{1/2}$$
$$= \left[7777.33335 \right]^{1/2}$$
$$= 88.18919066$$
$$= \mathbf{88.19}$$

$$\text{Chromium UCL} = 2(88.19) + 114.67$$
$$= \mathbf{291.05}$$

4. CALCULATION OF LEAD UCL

$$\text{Mean}(\mu) = 55.0 + 460.0 + 420.0 / 3$$
$$= 935 / 3$$
$$= \mathbf{311.67}$$

$$\text{Standard Deviation} = \left[(55.0 - 311.67)^2 + (460.0 - 311.67)^2 + (420.0 - 311.67)^2 / 3 - 1 \right]^{1/2}$$
$$= \left[65879.4889 + 22001.7889 + 11735.3889 / 2 \right]^{1/2}$$
$$= \left[99616.6667 / 2 \right]^{1/2}$$
$$= \left[49808.33335 \right]^{1/2}$$
$$= 223.1778066$$
$$= \mathbf{223.18}$$

$$\text{Lead UCL} = 2(223.18) + 311.67$$
$$= \mathbf{758.03}$$

Appendix E

SOIL BORING LOGS

SOIL BORING LOG: SB01	
COLLECTION TIME: 1220 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 24	LIMESTONE/BAGHOUSE DUST
24 - 40	FOUNDRY SAND/SOIL
40	AUGER REJECTION

SOIL BORING LOG: SB02	
COLLECTION TIME: 1130 COLLECTION DATE: 7/1/92	
DEPTH (INCHES)	SOIL TYPE
0 - 30	LIMESTONE
30	AUGER REJECTION

SOIL BORING LOG: SB03	
COLLECTION TIME: 1230 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 12	LIMESTONE
12 - 24	FOUNDRY SAND
24 - 30	CLAY
30 - 48	CLAY/SAND

SOIL BORING LOG: SB04	
COLLECTION TIME: 1300 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 12	LIMESTONE
12 - 36	SLAG/LIMESTONE
36 - 42	LIMESTONE/SAND
42	AUGER REJECTION

SOIL BORING LOG: SB05	
COLLECTION TIME: 1100 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 24	LIMESTONE
24 - 36	LIMESTONE/SAND
36 - 44	LIMESTONE/CLAY
44	AUGER REJECTION

SOIL BORING LOG: SB06	
COLLECTION TIME: 1420 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 12	LIMESTONE/BAGHOUSE DUST
12 - 26	LIMESTONE/FOUNDRY SAND/SOIL
26	AUGER REJECTION

SOIL BORING LOG: SB07	
COLLECTION TIME: 1345 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 12	LIMESTONE
12 - 36	LIMESTONE/BAGHOUSE DUST
36 - 48	LIMESTONE/CLAY

SOIL BORING LOG: SB08	
COLLECTION TIME: 1000 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 24	LIMESTONE
24 - 36	FOUNDRY SAND/SOIL
36 - 48	FOUNDRY SAND/SOIL

SOIL BORING LOG: SB09	
COLLECTION TIME: 1245 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 6	LIMESTONE

SOIL BORING LOG: SB10	
COLLECTION TIME: 1500 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 6	FOUNDRY SAND/LIMESTONE/SOIL

SOIL BORING LOG: SB11	
COLLECTION TIME: 1510 COLLECTION DATE: 1/7/92	
DEPTH (INCHES)	SOIL TYPE
0 - 6	FOUNDRY SAND/LIMESTONE/SOIL

Appendix F

CLOSURE CONFIRMATION SAMPLE COLLECTION TECHNIQUES

REVISED: MAY 1993

Closure Confirmation Sample Collection Techniques

Sample Collection

Samples will be collected with the use of STAINLESS STEEL hand augers or manually driven STAINLESS STEEL split-spoons. They will be collected at 0- to 1-foot and 1- to 2-foot depths at each location, placed in appropriate sample containers, and labeled clearly. Self adhesive paper labels will be affixed to the sample container immediately after sample collection and will include the following:

- Name of collector
- Date of collection
- Time of collection
- Project name
- Project number
- Sample number

Each sample will also be visually inspected to determine if the sample is foundry waste material or natural soils. This information will also be recorded on the sample label and sample log. Sampling equipment will be decontaminated between boring locations. These decontamination procedures will include the following steps:

- Wipe, brush, and/or scape off gross contamination
- Wash with a solution of distilled water and Trisodium Phosphate, Alconox, or equivalent solution
- WASH WITH A NITRIC ACID RINSE
- Triple rinse with distilled water

FIELD QA/QC PROCEDURES WILL BE AS FOLLOWS. ONE TRIP BLANK PER COOLER WILL ACCOMPANY THE SAMPLES TO THE LABORATORY. A MINIMUM OF ONE DUPLICATE SAMPLE WILL BE COLLECTED AND ANALYZED FOR EVERY TEN SOIL SAMPLES COLLECTED FOR ANALYSIS. Sample logs and chain-of-custody forms will be maintained for the samples. Samples will be shipped to the RMT Laboratory in Madison, Wisconsin, in sealed coolers. The sealed coolers will contain non-combustible packing materials, ice, laboratory work order forms, and completed chain-of-custody forms. An example chain-of custody form is attached.

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Troy, MI

Grand Lodge, MI
Nashville, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, W

F-268 (R2/92)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

№ 040337

Bottles Prepared by:	Date/Time

Project No.	Client:

Filtered (Yes/No)
Preserved (Code)

Code: A - None
B - HNO3
C - H_2SO4
D - NaOH
E - HCl
F - ______

RMT Lab NO.	Yr.____ Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory							MATRIX	Comments:

SAMPLER Relinquished by (Sig.) ①	Date/Time	Received by (Sig.) ② Shipper Name & #	Date/Time
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #	Date/Time
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #	Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp ______

Receipt pH ______ ______ ______

Custody Seal	Present/Absent	Seal	Intact/Not Intact	Seal #'s

WHITE - LABORATORY COPY

Appendix G

PRE-CLOSURE SAMPLING PLAN

PRE-CLOSURE SAMPLING PLAN
FOR
EAF BAGHOUSE

PREPARED FOR:
AMERICAN STEEL FOUNDRIES
ALLIANCE, OHIO

PREPARED BY:
RMT, INC.
SCHAUMBURG, ILLINOIS

JANUARY 1992
REVISED: MAY 1993

TABLE OF CONTENTS

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1.0 OBJECTIVE

REVISED: MAY 1993

The objective of this sampling and analysis plan is to determine the compositional and leaching characteristics of Lead, Chromium, BARIUM, and Cadmium in the soils in the area of the EAF baghouse and to determine the extent of soil contamination due to the past operational practices of the EAF baghouse at the American Steel Foundries (ASF) facility in Alliance, Ohio. In addition, ~~three~~ TWELVE samples will be collected from areas not associated with baghouse activities to ~~differentiate between~~ DETERMINE BACKGROUND LEVELS OF Lead, Chromium, BARIUM, and Cadmium ~~levels found in foundry waste throughout the site~~.

This sampling and analysis plan will aid in the determination to achieve clean closure for the EAF baghouse as referenced in the consent decree under 40 C.F.R. §§ 264.111, 40 C.F.R. §§ 264.112(b), OAC 3745-66-11 and OAC 3745-66-12 (B). Several options for clean closure will be considered as a result of this sampling plan including:

- Limestone recovery and recycling
- Soil removal and disposal
- Combinations of the above

If the results of this sampling and analysis program indicate that clean closure of the baghouse area may not be possible, several other options for closure of the baghouse may also be considered as a result of this sampling plan including:

- Installation of a concrete pad covering contaminated soils
- Combinations of the methods of clean closure mentioned above with a concrete pad covering additional contaminated soils

By following these objectives we can refine the assumptions which will be used to write the Closure Plan, thus allowing the Closure Plan to be tailored to the conditions existing at the site. While this preliminary approach requires more time and expense during the planning stage, it could aid to a more cost-effective closure during the Closure Plan approval and implementation stages.

2.1 Sample Locations

A total of eight soil sampling locations will be sampled at various depths (see Figure 2-1 for proposed sampling locations). Five sampling locations were selected within four feet of the baghouse for the purpose of defining the horizontal extent of contamination. Three sampling locations directly below the baghouse were chosen to obtain additional information regarding the vertical extent of contamination. In addition, three sampling locations will be selected upon the site visit. These three sampling locations will be in areas not affected by baghouse activities. One sample will be collected at a depth of 6-inches at each sample location not affected by baghouse activities. AN ADDITIONAL TWELVE BACKGROUND SAMPLES WILL BE TAKEN PRIOR TO EXCAVATION ACTIVITIES. SEE FIGURE 3-1A FOR SAMPLE LOCATIONS.

2.2 Sample Collection Procedures

Past history of the baghouse area indicates a significant amount of limestone may be at the surface. Since limestone is a recyclable resource, samples will be collected below the limestone layer. If the limestone layer is observed to be of sufficient quality for recycling, the limestone may be removed and recycled into the arc furnace.

Due to the construction of the baghouse and the proximity of the building to the northeast of the baghouse, the removal of soils below four feet may be damaging to these structures. Thus, each sample location will be sampled at one foot intervals from the surface to a total depth of four feet.

All samples will be grab samples collected by use of a hand auger and a hand trowel. A shovel and/or hand auger will be used to remove the overburden material of each sampling point. A hand trowel will then be used to scoop the sample material from the sampling point and to place the material directly into the appropriate sample container.

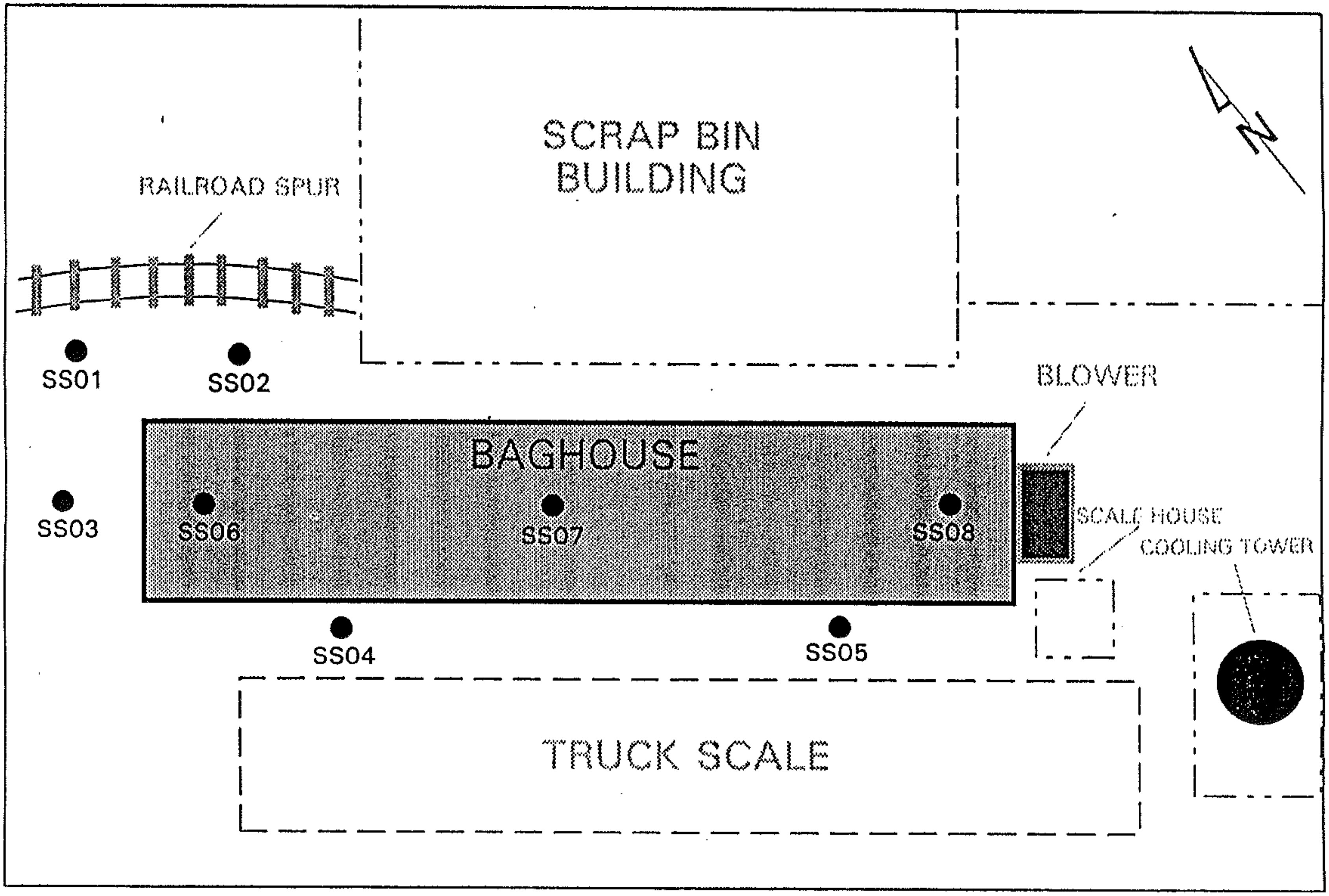

Figure 2-1 Sampling Locations
American Steel Foundies - Baghouse
Not To Scale

2.3 Sample Documentation Procedures

One of the vital components of a sampling scheme is to adequately define the records during a study. Well kept records are important in the validity of a closure plan. Several records required for this sampling plan include field logbooks, sample numbering and labeling, and chain-of-custody procedures.

2.3.1 Field Logbook

A field logbook will provide the means of recording pertinent data during the collection of any sample. Entries into the logbook will be described in as much detail as possible so that the persons going to the site can reconstruct a particular situation without reliance an individuals memory.

The field logbook will be identified by a project-specific number. The title page of the logbook will contain, at a minimum, the following information:

- Person to whom the book is assigned
- Project name
- Project start date
- Project end date

Entries into the logbook will contain a variety of information. At the beginning of each entry, the date, start time, weather conditions, names of personnel present, and the signature of the person making the entry will be entered. Any measurements made and samples collected will be recorded into the logbook. All entries will be made in ink and no erasures made. If an incorrect entry is made, the information will be crossed out with a single strike mark and the person making the correction will place their initials along with the date below the correction. When ever a sample measurement is made, a detailed description of the sample location or activity will be recorded. Distance measurements to any permanent marking points will also be included in the sample location description. The number and direction of photographs taken, if any, will also be noted.

Samples will be collected in accordance to the procedures stated in this plan. The equipment used to collect samples will be noted along with the date and time of sampling, sample description, sample number, depth at which the sample was collected, and the type of sample container used.

2.3.2 Sample Numbering and Labeling

Each sample location will have a unique location number i.e. SS01 (Soil Sample Number One). In addition, each sample point will have a unique sample number which will include the sample location number as well as the depth (in inches) at which the sample was collected i.e. SS01.48 (Soil Sample Number One collected at a depth of 48 inches below the surface).

Sample labels are necessary to prevent the possible misidentification of a sample. Self adhesive paper labels will be affixed to the sample jar immediately after sample collection and will include the following information:

- Name of collector
- Date of collection
- Time of collection
- Project name
- Project number
- Sample number

2.3.3 Chain-of-Custody Procedures

Insuring the integrity and traceability of a sample from the point of collection to data reporting is an essential part of a sampling/analytical scheme. The chain-of-custody (COC) is necessary due to a possibility that analytical data or conclusions based upon analytical data may be used in possible litigation, and for the routine tracking and control of sample flow. A copy of the COC form can be found in Appendix A. The COC form will be completed by the sampler for each sample shipment to the laboratory. Information included in the COC will include the following:

- Project name
- Project number
- Samplers name
- Date of sample collection
- Time of sample collection
- Composite or grab sample determination
- Sample number
- Number of sample containers
- Analysis requested
- Sample turn around time
- Relinquishing signatures
- Additional remarks

Each sample will be accompanied by an original COC within each shipping container (only one COC required within each shipping container). When the samples are relinquished to the laboratory personnel, the COC will be signed by the recipient and filed.

2.4 Decontamination Procedures

Non-disposable sampling equipment will be decontaminated between each sampling point to eliminate possible cross contamination. The decontamination procedures will be as follows:

- Wipe, brush, or scrape off residual soils
- Wash with a solution of distilled water and Trisodium Phosphate, Alconox, or equivalent detergent
- WASH WITH A NITRIC ACID RINSE
- Triple rinse with distilled water

The decontaminated sampling equipment will then be dried with clean paper towels or hung to air dry in a contaminant-free area. When the implements are dry, they will be wrapped in aluminum foil or placed in a clean plastic bag. The sampling equipment will then be stored in the foil or bag until the utensil is needed for sampling.

Samples collected from the 0-to-1 foot sample increment will be submitted to the RMT laboratory in Madison, Wisconsin. All samples will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) analysis of Lead, Chromium, BARIUM, and Cadmium using USEPA's SW-846 methods. After reviewing the results of these analyses, the 1-to-2 foot samples will be submitted only from the same sample locations at which elevated concentrations were detected. The remaining samples will be handled with the same methodology. This method is suggested to reduce the number of sampling events and analyses.

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Nashville, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, W

CHAIN OF CUSTODY RECORD

№ 040337

Bottles Prepared by: | Date/Time

Project No. | Client:

Container Inventory

Filtered (Yes/No)

Preserved (Code)

Code: A - None
B - HNO3
C - H_2SO_4
D - NaOH
E - HCl
F - ______

RMT Lab NO.	Yr.____ Date	Time	Sample Station ID	Total Number Of Containers								MATRIX	Comments:

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Receipt Temp ________

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Custody Seal Present/Absent Seal Intact/Not Intact | Seal #'s